

WHAT IS CLAIMED IS:

5 1. An isolated, substantially pure natural or synthetic polypeptide comprising a cathepsin L type cysteine protease having an apparent molecular weight ranging from 15 to 32 kilodaltons.

10 2. The cysteine protease polypeptide as defined by Claim 1, having an isoelectric point ranging from 6 to 9.

15 3. The cysteine protease polypeptide as defined by Claim 1, isolated from mammalian tissue.

20 4. The cysteine protease polypeptide as defined by Claim 3, isolated from mammalian skin.

25 5. The cysteine protease polypeptide as defined by Claim 4, isolated from human skin.

15 6. The cysteine protease polypeptide as defined by Claim 5, isolated from human epidermis.

20 7. The cysteine protease polypeptide as defined by Claim 1, having an apparent molecular weight ranging from 25 to 30 kilodaltons.

25 8. The cysteine protease polypeptide as defined by Claim 1, exhibiting maximum activity at a pH ranging from 2 to 9.

25 9. The cysteine protease polypeptide as defined by Claim 8, exhibiting maximum activity at a pH ranging from 3.5 to 6.5.

10. A polypeptide fragment of the cysteine protease polypeptide as defined by Claim 1.

5 11. The polypeptide fragment as defined by Claim 10, obtained via proteolysis of said cysteine protease polypeptide.

12. A synthetic fragment of the cysteine protease polypeptide as defined by Claim 1.

10 13. A cosmetic/pharmaceutical composition comprising the cysteine protease polypeptide as defined by Claim 1, or polypeptide fragment thereof, formulated into physiologically acceptable medium therefor.

15 14. The cosmetic/pharmaceutical composition as defined by Claim 13, comprising from about 0.00001% to 50% by weight of said cysteine protease polypeptide or polypeptide fragment thereof.

15. The cosmetic/pharmaceutical composition as defined by Claim 14, comprising from about 0.001% to 10% by weight of said cysteine protease polypeptide or polypeptide fragment thereof.

20 16. The cosmetic/pharmaceutical composition as defined by Claim 13, further comprising at least one protease activator.

25 17. The cosmetic/pharmaceutical composition as defined by Claim 16, said at least one protease activator comprising glycerol, urea or derivative thereof, transglutaminase, EDTA, reducing agent, or combination thereof.

18. The cosmetic/pharmaceutical composition as defined by Claim 16, comprising from about 0.00001% to 15% by weight of said at least one protease activator.

5 19. The cosmetic/pharmaceutical composition as defined by Claim 18, comprising from about 0.001% to 10% by weight of said at least one protease activator.

10 20. A regime or regimen for combating excessive intercorneocyte cohesion or for promoting desquamation in a mammalian subject in need of such treatment, comprising topically applying to the skin or mucosae of such mammalian subject an effective amount of the cysteine protease polypeptide as defined by Claim 1.

15 21. A regime or regimen for treating a desquamation disorder or affliction affecting a mammalian subject in need of such treatment, comprising administering to such mammalian subject an effective amount of the cysteine protease polypeptide as defined by Claim 1.

20 22. A regime or regimen for treating hyperkeratosis affecting a mammalian subject in need of such treatment, comprising administering to such mammalian subject an effective amount of the cysteine protease polypeptide as defined by Claim 1.

23. A regime or regimen for treating xerosis, ichthyoses, psoriasis, benign or malignant tumor lesions, or reactive keratoses affecting a mammalian subject in need of such treatment, comprising
5 administering to such mammalian subject an effective amount of the cysteine protease polypeptide as defined by Claim 1.

10 24. A regime or regimen for treating leukokeratosis of the uterine neck during prolapsus, buccal leukokeratoses or keratotic benign tumor lesions of the malpighian mucosae affecting a mammalian subject in need of such treatment, comprising administering to such mammalian subject an effective amount of the cysteine protease polypeptide as defined by Claim 1.

15 25. A complex of said cysteine protease polypeptide as defined by Claim 1, or polypeptide fragment thereof, and having any structural or functional molecule specifically bonded thereto.

20 26. The complex as defined by Claim 25, said specifically bonded molecule comprising a corneodesmosome, or an enzyme of the horny layer, protease, glycosidase or phosphatase type.

25 27. A monoclonal antibody or antisera prepared/purified from the cysteine protease polypeptide as defined by Claim 1, or polypeptide fragment thereof.

TOP SECRET//COMINT

28. The cosmetic/pharmaceutical composition as defined by Claim 13, further comprising at least one active agent selected from among antibacterial, antiparasitic, antifungal, antiviral, anti-inflammatory, 5 antipruritic, anaesthetic, keratolytic, anti-free-radical, antiseborrhoeic, antidandruff and anti-acne agents, and/or agents reducing skin differentiation and/or proliferation and/or pigmentation.

29. The cosmetic/pharmaceutical composition 10 as defined by Claim 13, formulated as a solution, dispersion, emulsion, lotion, cream, gel, milk, serum, syrup, foam, soap, cake, shampoo, toothpaste, microcapsules, microparticles or vesicular dispersion of ionic and/or nonionic type.

30. The cosmetic/pharmaceutical composition 15 as defined by Claim 13, formulated as capsules, granules or tablets.

31. The cosmetic/pharmaceutical composition 20 as defined by Claim 13, further comprising at least one hydrophilic or lipophilic gelling agent, hydrophilic or lipophilic additive or adjuvant, preservative, antioxidant, solvent, perfume, filler, screening agent, odor absorber, colorant, or combination thereof.